



The Global Language of Business

2D barcodes case study

Mercadona: Transitioning to the GS1 Digital Link Standard as a Driver for Efficiency and Profitability in Retail

By implementing QR codes based on the GS1 standard, Mercadona has revolutionized its logistical operations, potentially recovering half a million work hours. This technological leap allowed the labeling time to be reduced from 75 seconds to less than 10 seconds, ensuring full traceability from the supplier to the point of sale



Challenge

Like any retailer managing fresh variable-weight products, Mercadona faced major challenges in controlling expiration dates, supplier identification and food safety at the point of sale. Traditional barcodes could not distinguish which supplier delivered a specific product, and expiration checks were largely manual. This created inefficiencies, limited traceability and increased the risk of expired products being sold.

Solution

Mercadona implemented QR Codes powered by GS1 Digital Link, enabling each product label to carry structured data including the GTIN (the unique EAN-13 code per product/supplier that indirectly identifies the vendor), batch, expiration date, weight and price. After testing both DataMatrix and QR Code, Mercadona selected QR Code for its superior reading speed, printing performance and compatibility with existing POS systems. Only GS1 Digital Link QR Codes are accepted at checkout, ensuring full data integrity.

Benefits

Label printing time was reduced from more than one minute to less than 10 seconds, enabling faster price reductions and expiry management. Expired products are automatically blocked at POS, ensuring food safety. Store managers gain real-time visibility of products nearing expiration, allowing proactive stock control and waste reduction.

“Through the use of QR codes, we have enhanced our processes, making them more traceable, efficient, and robust. This improvement brings us progressively closer to the standard of excellence we strive to deliver to our The Boss’ (the term we use at Mercadona to refer to our customers).”

— Edgar Talavera, Barcode Area Coordinator, Mercadona

Like any major retailer, Mercadona stores handle large volumes of fresh, variable-weight products such as meat, poultry and ready-to-sell items. If products past their expiration date reach the checkout, the risks are significant, including food safety issues and loss of customer trust. Manually checking every label is slow, labour-intensive and prone to human error. That is why Mercadona launched a project, with the support of GS1 standards, to digitally secure product traceability and expiration control using QR Codes powered by GS1 Digital Link.

Use of 2D Barcodes at Mercadona

Mercadona's 2D barcode is a QR Code based on GS1 Digital Link, containing a complete, structured data set: URL, GTIN, batch number, product expiration date, store expiration date, net weight, price and unit price. This allows every scanned product to be uniquely identified, validated and traced automatically at the POS and back-office systems.

The retailer evaluated DataMatrix versus QR Code with Digital Link, focusing on speed of printing, scan reliability and label size. QR Codes delivered better performance with existing scanners and POS equipment, allowing Mercadona to avoid costly hardware replacement while achieving faster reading and printing.

The project started with fresh meat products, where supplier traceability and expiration control are most critical. The first live implementation was with ECMEDINA in February 2024, followed by INCOVA and JUCARNE, expanding across beef, poultry, pork and rabbit.

To support the rollout, Mercadona deployed high-speed labeling systems capable of printing QR Codes in under 10 seconds, enabling efficient relabeling for expiration control and price reductions directly in store operations.



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Process Adjustments in Stores

Mercadona introduced GTIN-based supplier identification for variable-weight products, allowing sales to be tracked by supplier at POS for the first time. This created full visibility of supplier performance and eliminated the blind spots of traditional barcodes.

New labeling equipment was deployed in stores, allowing staff to reprint QR Code labels quickly for expiration control and markdowns. The new process reduced printing time by over 85 percent, freeing staff for higher-value tasks.

At checkout, the system is configured to only accept QR Codes with GS1 Digital Link. Products carrying other 2D symbols, such as DataMatrix from non-Mercadona suppliers, are automatically blocked, protecting data quality and business rules.

The POS now automatically blocks expired products and validates weights, prices and dates in real time, strengthening food safety, improving stock accuracy and ensuring regulatory compliance.

Success and Benefits of the Implementation

Mercadona's POS systems now read QR Codes with GS1 Digital Link at full speed, enabling instant validation of product, supplier, weight and expiration date. This makes the checkout process faster, more reliable and more secure.

Automatic expiration alerts and blocking rules prevent any product past its date from being sold. Store managers can see in real time how many products are close to expiring, allowing proactive price reductions and waste minimisation.

These controls significantly improve consumer safety and trust, while also increasing operational efficiency and reducing losses from expired or mispriced products. Customer satisfaction improves because products are fresher, safer and more consistently priced.



Next Steps and Future Challenges

Following the success in meat, Mercadona plans to extend QR Codes with GS1 Digital Link to fish, cheese and fresh fruit and vegetables in 2025, where expiration, weight and supplier traceability are equally critical.

The retailer is also expanding incident reporting using iPads, where staff scan QR Codes to automatically capture product data and quickly report quality or logistics issues, improving data accuracy and response times.

In logistics and store operations, Digital Link creates new opportunities for FIFO management, automated stock rotation and end-to-end traceability, connecting suppliers, distribution centres and stores through a single digital identity.

In the longer term, Mercadona sees QR Codes powered by GS1 Digital Link as the foundation for a fully connected retail ecosystem, supporting safer food, smarter logistics and richer consumer experiences across all product categories.

About Mercadona

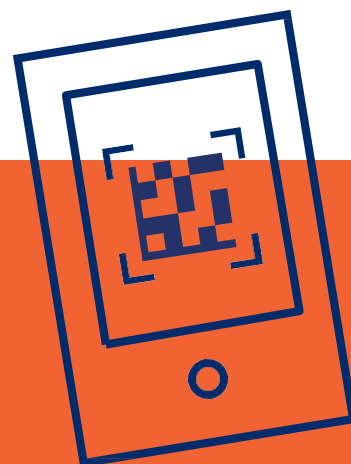
Mercadona entered the Portuguese market with a strong focus on fresh products, customer experience and operational efficiency. Since opening its first stores, Mercadona has quickly become known for its competitive prices, wide range of quality items and commitment to sustainability, supported by efficient logistics and supply chain practices. The retailer's approach combines local sourcing with robust inventory and expiration control to meet consumer expectations in Portugal.

In Portugal, Mercadona continues to adapt its processes and technology to deliver consistent freshness and traceability. By implementing digital innovations such as QR Codes with GS1 Digital Link, Mercadona enhances product transparency, improves food safety, and provides faster, more reliable service at the point of sale. This digital transformation supports better inventory management and strengthens customer trust in a competitive retail environment.

About GS1

GS1 is a neutral, not-for-profit organisation that develops and maintains the global standards that support initiatives such as Mercadona's adoption of QR Codes powered by GS1 Digital Link. By defining how product, batch, weight and expiry data are structured and shared, GS1 enables Mercadona to connect suppliers, stores and systems through a single, trusted digital language. These standards ensure interoperability, data quality and long-term scalability, allowing Mercadona to modernise its operations without dependence on proprietary technologies. With its worldwide network of GS1 Member Organisations and millions of users, GS1 provides the foundation for safer, more efficient and more transparent retail and supply chain processes.





Get started with 2D barcodes by GS1

GS1 is working with industry to support 2D implementations and create guidance for assisting in the design of proof-of-concept demonstration pilots.

At a high level, consider the following elements:

Retailers: create a vision for use cases enabled by 2D barcodes, assess your current technical capabilities (scanners and back-office systems) to understand your roadmap to enable scanning of all barcodes, and collaborate with other stakeholders to ensure alignment on goals and outcomes.

Brands, Manufacturers and Suppliers: bring together your supply chain and marketing executives to collaborate on a combined barcode strategy that achieves both consumer engagement and supply chain goals.

Solution Providers: consider the upgrades needed to your systems to enable multiple barcode scanning/printing and support your end-users in achieving their top use cases enabled by 2D barcodes.

Questions about the 2D future?

Contact your local GS1 Member Organisation to see how GS1 can help you begin your journey toward a new dimension in barcodes!

www.gs1.org/contact

GS1 AISBL

Blue Tower, Avenue Louise 326, BE 1050 Brussels, Belgium
T +32 (0)2 788 78 00 | F +32 (0)2 788 78 99 | E contactus@gs1.org www.gs1.org